in rabbits and some other rodents, The following papers: On the development of the teeth in certain Insectivora, by M. F. Woodward; on the poison apparatus of certain snakes, by G. S. West; on the value of myology in the classification of animals, by F. G. Parsons; and on ultimate vital units, by Miss Nina Layard, concluded the ordinary sittings of the Section.

A notable feature of the meeting was the very successful dredging expeditions organised for the Zoological Section by the Local Committee, with the help of the President of the Section and Dr. H. C. Sorby. On Saturday a large steamer was chartered from the Railway Company for dredging outside Harwich. Many hauls of the dredge, and of various forms of tow-net, both surface and bottom, were made off the Naze and in the neighbourhood of the Gunfleet bank. Large quantities of material were obtained, including representatives of most groups of the Invertebrata. The specimens picked out were arranged in a number of large glass jars, and on the return journey Prof. Herdman gave a demonstration on the most interesting forms obtained. On Wednesday, the 18th, the second zoological excursion took place, to Wyvenhoe to inspect the Colne Oyster Fishery, by invitation of the Mayor and Corporation of Colchester. The party were taken on board the new steam oyster dredger of the Fishery Board, and hauls of the dredges were obtained at various points in the estuary of the Colne in order to show the condition of the oyster ground. Large quantities of the Polyzoon *Alcyonidium gelatinosum* and of common Ascidians, especially *Ascidiella virginea*, were found associated with the oysters. The steamer then proceeded to the Pyefleet creek, where three millions of the famous Colchester "natives" are now fattening; here the party landed and inspected the packing sheds, where they were entertained to an oyster luncheon. On returning to the steamer, dredging was again carried on further down the estuary, so as to see as much as possible of the ground, and the different ages and conditions of the oyster. Every facility was given to the party for examining this important fishery, and a most favourable impression was received of the healthiness of the ground, the purity of the water, and the excellent condition of the stock.

GEOGRAPHY AT THE BRITISH ASSOCIATION.

THE brilliant International Geographical Congress, recently held in London, seems to have afforded sufficient intellectual dissipation for most British geographers this year, and many familiar faces were absent from Section E. Comparatively few papers were presented for reading, and several of these were read by the Secretaries, as the authors could not attend. It is doubtful whether papers presented in this way should be brought before the Association, for fair discussion is impossible unless the author is present to support his arguments and answer questions.

If Section E retained its usual popularity this year—and the large lecture hall was occasionally crowded—it was not because of the sensational character of the communications made; there was not even a lady-traveller to read a paper. A characteristic of the meeting was the exceptional scientific value of the papers, which dealt less with exploration than with research.

During recent years the President of Section E has almost always been a practical geographer with a commanding knowledge of one branch of his subject, and this year the succession was worthily upheld by Mr. H. J. Mackinder, the Reader in Geography at Oxford, whose experience of higher education in geography enabled him to formulate a scheme for restoring that science to its proper place in a rational university system. The older universities have not responded as was expected to the proposals of the Royal Geographical Society as to the institution of Chairs of Geography, and the time seems to have come for the Society to take a fresh departure, either independently or in conjunction with a new university not blind to the value of the experiment which has been tried and found satisfactory in Germany. A Committee of the British Association has been appointed, without a grant, to investigate the teaching of geography in this country, Mr. Mackinder being chairman and Mr. Herbertson secretary.

The President's contention that geography is not "the science of all things," but a correlating study dealing with the results of all sciences relating to the earth from a special standpoint, was driven home by many of the papers presented to the meeting.

Mr. W. B. Blaikie demonstrated by his greatly-improved cosmosphere the astronomical relations of geography, the combination of a terrestrial globe with a transparent celestial globe on which the constellations are printed, forming a great advance on the old armillary sphere; while the ingenious device of removing a celestial and terrestrial hemisphere allowed of the working of plane problems on the section as readily as of spherical problems on the surface of the outer sphere.

Climatology was discussed in the report of the Committee on the climate of tropical Africa, which was presented by Mr. Ravenstein, the chairman. It shows the results already obtained from the six stations in tropical Africa equipped by the Association. The Committee was reappointed with a small grant and with a change of secretary, Mr. H. N. Dickson taking the place of Dr. H. R. Mill.

Dr. John Murray gave a sketch of the central problem of oceanography—the circulation of the oceans; and the Section instructed the President to write a letter to Dr. Murray, congratulating him on the completion of the *Challenger* Reports, the most important contribution to physical geography of recent years.

Mr. H. N. Dickson summarised the result of the recent international observations on the North Atlantic, in which he took part, and by the aid of lantern diagrams showed that the distribution of the temperature of the surface-water was intimately associated with the distribution of mean atmospheric pressure over the ocean, and that consequently the temperature of the Atlantic water was an important factor in determining the weather as well as the climate of Western Europe.

Mr. A. Trevor Battye read an interesting paper on the struggle for existence in Arctic regions, dealing with biogeographical problems, but unfortunately there was no time to discuss it. A biological discussion which greatly pleased the audience, but was perhaps somewhat inappropriate to the Section, arose on Mr. Borchgrevink's paper describing his recent experiences in the far South, and a proposed plan for a private Antarctic expedition. Sir Joseph Hooker, the veteran of Ross's Antarctic voyages, who was received with great enthusiasm, referred to his adventures in the Antarctic seas, and while congratulating Mr. Borchgrevink on his work in the Norwegian whaling trip, expressed little hope of great results following a private expedition. Sir William Flower had the meeting with him in declaring that no more attempts should be made to send out ships on the pretext of looking for whales or seals, but with the hope of gaining scientific information.

The return to Vardö of the *Windward*, after landing Mr. Jackson in Franz-Josef Land, occurred during the meeting, and Mr. Montefiore, Secretary of the Jackson-Harmsworth expedition, gave a brief account of the start of the land party.

In the historical aspect of geography, Mr. J. L. Myres contributed a discussion of the maps of Herodotus, which enabled an interesting contrast to be drawn between the *à priori* methods of the ancient world and the scientific inductions of to-day.

The papers descriptive of exploration dealt with Africa and Asia. Captain Hinde's experiences in the Congo State, and Mr. G. F. Scott-Elliot's admirable expedition for the scientific study of the Ruwenzori region, have already been before the public in other forms. Mr. H. S. Cowper's journey through Tarhuna and Gharian in Tripoli was new, and the archæological features which he observed seem to be deserving of further study.

The Rev. W. Weston gave one of the most valuable travel-papers—an account of his explorations in the Japanese Alps. This range occupies the centre of the largest island, with summits rising to elevations of over 10,000 feet. The snowfall on the western side is enormous on account of the moisture in the prevailing wind, while the eastern side of the range remains comparatively free of snow. Although the snow-line in summer is as low as 7000 feet in places, there are no signs of glacial action. The volcanic mountains abound in hot mineral springs of high repute as baths, and ores of copper and silver are mined in several places. The flora and fauna are both rich, and the people retain their ancient politeness and hospitality, while many curious customs and beliefs survive amongst them.

Mr. John Dodd, who was not able to be present, sent an exhaustive memoir on Formosa, where he had resided from 1864 to 1890. As a trader he had been much in contact with the aboriginal tribes of the interior, and he gave a graphic account of

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their mode of life and their relations with the Chinese colonists. The resources of the island were described, and the prospects of foreign trade discussed. Probably no European is so well able as Mr. Dodd to speak from experience of the latest accession to the empire of Japan.

Dr. A. Markoff drew attention to the geography of Russian Asia, especially with reference to the Siberian railway.

Major Darwin gave an epitome of the work of the sixth International Geographical Congress.

Mr. Miller Christy directed the attention of geographers to the remote islet of Rockall, off the west coast of Scotland, which has never been properly studied, and he suggested that it would be a good field of research for a hardy yachtsman. This paper provoked a lively discussion, in which the value of Rockall as a weather-forecasting station was referred to, and the practical difficulties in the way of utilising it considered.

The Section authorised the President to write a letter of condolence to the parents of the late Mr. Joseph Thomson, expressing the high opinion universally held as to the value of the work he did in Africa, and the warm affection with which his genial personality was regarded by every geographer.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

THE Report just issued by the Somerset County Education Committee shows that the work of technical education is being developed, and mostly in the right direction. Much of the instruction given was of a very elementary character, but this is just what is needed by the type of student for whom it is intended. It is satisfactory to note that a course of experimental science was followed by a number of teachers. The instruction was confined almost entirely to experiments suitable for class demonstration, and, where possible, for repetition by evening school pupils. The words of Mr. C. H. Bothamley, the Director of Technical Instruction in Somerset, as to the use of such practical work, are worth repeating here. "Since the chief object of science teaching in evening schools is not so much to impart a knowledge of useful facts (though that is important), as to train pupils to use their eyes in their daily occupations, to observe accurately, and to reason correctly from what they have observed, it is clear that, if this end is to be attained, the pupils must see things for themselves, and not simply be told things, and the experimental proofs must be complete, and the reasoning based on them must be sound." We will go further and say that the only real scientific knowledge is obtained not from seeing experiments performed, but by doing them. Clear and accurate class demonstrations are undoubtedly good, but practical work carried out by the pupils themselves is far better, and the more facilities that are given for such work, the firmer will be the foundation upon which a superstructure of technical education can be built.

AMONG the recent appointments we notice the following:—Dr. A. Heydweiller, Privat-docent in Physics and Physical Chemistry at Strassburg, to be Extraordinary Professor at Breslau; Dr. Leo Gruenhut to succeed the late Prof. Borgmann at the Fresenius Chemical Laboratory, Wiesbaden; Dr. K. W. v. Dalla-Torre, Privat-docent in Zoology at Innsbruck, to be Extraordinary Professor. Dr. K. Zickler to the full Professorship of Electrotechnology at the Brünn Technical High School, and Dr. Dzieslewski to a similar post in the Technische Hochschule at Lemberg; Dr. E. Yung to succeed the late Carl Vogt as Professor of Comparative Anatomy and Zoology at Geneva; Dr. B. Weinstein to be Extraordinary Professor of Physics in Berlin University; Dr. Max Verworn to be Extraordinary Professor in Physiology at Jena; Dr. Herbert Hurst to be Demonstrator in Zoology, and Mr. Vaughan Jennings to be Demonstrator in Geology, at the Royal College of Science, Dublin; Dr. J. P. Kuenen to the new Harris Chair of Physics in University College, Dundee; Dr. Rawson to be Headmaster of Huddersfield Technical School.

AT the recent Matriculation Examination of the City and Guilds Central Technical College, seventy-six candidates presented themselves, and sixty-two have been admitted to the College. The highest place was taken by M. Solomon, to whom the Clothworkers' Scholarship of £60 a year and free education has been awarded.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, September 23.—M. Fizeau in the chair.—On a specimen of black diamond from Brazil, by M. Henri Moissan. The specimen is from Bahia Province, and weighs 630 grams (about 3073 carats). Its surface is in part rough, appearing when slightly magnified as if gas had escaped therefrom while in a pasty condition. It resembles the microscopic grains of crystallised carbon produced in the interior of suddenly cooled silver and iron masses. This specimen is porous, and has lost weight since removal from the soil to the extent of sixteen grams.—On the existence of phlorizic glycosuria in dogs after section of the spinal cord, by M. R. Lépine. On the administration of phlorizine, glycosuria follows almost as in the case of healthy dogs, and differs from the latter case merely in the production of a less total quantity of glucose.—A brochure entitled "The actual limits of our science; a presidential address to the British Association at Oxford, delivered August 8, 1894, by the Marquis of Salisbury" (translated by M. W. de Fonvielle), has been printed in the Correspondence of the Academy.—On the composition of pélagéine, by MM. A. B. Griffiths and C. Platt. The violet pigment of the Medusa (*Pelagia*) has the composition $C_{20}H_{17}NO_7$, and is termed by the authors pélagéine. It is soluble in alcohol, ether, and acetic acid, very soluble in carbon disulphide, and insoluble in water. It gives no characteristic absorption bands.

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